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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,817	09/24/2003	John A. Webster	BG-4114/1086.023D	6988

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EXAMINER	
ELEY, TIMOTHY V	

ART UNIT	PAPER NUMBER
3724	

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/669,817	WEBSTER, JOHN A.	
	Examiner	Art Unit	
	Timothy V. Eley	3724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *7 and 15-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 8-12* is/are rejected.

7)☒ Claim(s) *3,13 and 14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/24/03,4/25/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Applicant should note the disposition of U.S. Patent Application Ser. No. 10/206,026, which is now U.S. Patent No. 6,669,118, in the specification.

Claim Objections

2. Claim 3 is objected to because "said determining . . . operation" is awkwardly worded. Exactly how is the flowrate determined? Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1,2,3,5,6,10, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Campbell.

- Campbell discloses a method for delivering a coherent jet of grinding coolant to a grinding wheel(10) being rotated at a selected peripheral wheel speed in a grinding operation, the method comprising; inherently determining a desired flowrate of coolant for the grinding operation; inherently determining coolant pressure required to generate a coolant jet speed approximately equal to the peripheral wheel speed at the coolant

flowrate; inherently determining a nozzle discharge area capable of achieving the coolant jet speed; and providing a nozzle assembly for delivery of a coherent jet of a grinding coolant at the coolant jet speed, wherein the nozzle assembly comprises a plenum means(inherently for producing a pressurized jet) and at least one nozzle(18), the nozzle comprising an axis(which does not have to be in the center of the nozzle), a proximal end having a maximum dimension D, and a distal end portion containing the nozzle discharge area having a longitudinal cross-section of dimension d; the distal portion having a surface disposed at an angle of at least 30 degrees relative to the axis(since an axis may be used which is tilted), and the nozzle characterized by a D:d ratio of at least about 2:1. See figure 1, column 2, lines 11-18, and lines 65-end to column 3, lines 1-23.

- Regarding claim 2, the inherently determining a desired flowrate comprises using a width of the grinding zone. See column 3, lines 5 and 6.
- Regarding claim 3, inherently some power will be consumed as the flowrate is determined as vague recited by applicant.
- Regarding claim 5, the nozzle may be considered to have an asymmetrical cross-section depending upon where the axis is located.
- Regarding claim 6, the nozzle has a rectangular transverse cross-section. See column 5, lines 9-12.

- Regarding claim 10, as seen in figure 1, the ratio D:d is clearly less than or equal to 4:1.
- Regarding claim 11, inherently any plenum or pump for applying pressure for creating the jet will be a "chamber".

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell.

- Campbell is explained above.
- Campbell does not disclose a plenum chamber, which comprises a modular front plate removably fastened to a downstream side of the plenum chamber.
- However, as stated above, any plenum or pump for applying pressure for creating the jet will be a "chamber", and to make portions of the chamber removable for cleaning inside the "chamber" it would have been obvious to one having ordinary skill in the art at the time the invention was made.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell in view of Hill et al(6,123,606).

- Campbell is explained above.

- Campbell does not disclose determining coolant pressure comprises determining a number and pitch of nozzles.
- However, Hill et al disclose that it is known to use one or two nozzles for cooling the peripheral surface of a grinding wheel. See column 3, lines 27-31.
- Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Campbell by determining a number and pitch of nozzles since Hill et al discloses that two nozzles may be used to replace one nozzle incapable of adequately cooling the peripheral surface of the grinding wheel.

8. Claims 1-3, and 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazui et al(5,390,446) in view of Morris(3,104,826).

- Kazui et al discloses a method for delivering a coherent jet of grinding coolant to a grinding wheel(1) being rotated at a selected peripheral wheel speed in a grinding operation, the method comprising; inherently determining a desired flowrate of coolant for the grinding operation; inherently determining coolant pressure required to generate a coolant jet speed approximately equal to the peripheral wheel speed at the coolant flowrate; inherently determining a nozzle discharge area capable of achieving the coolant jet speed; and providing a nozzle assembly for delivery of a coherent jet of a grinding coolant at the coolant jet speed, wherein the nozzle assembly comprises a

plenum means(inherently for producing a pressurized jet) and at least one nozzle(12). See figure 7, column 2, lines 1-4, column 6, lines 53-60, column 7, lines 29-43, and column 8, lines 13-24.

- Kazui et al does not disclose that the nozzle comprise an axis, a proximal end having a maximum dimension D, and a distal end portion containing the nozzle discharge area having a longitudinal cross-section of dimension d; the distal portion having a surface disposed at an angle of at least 30 degrees relative to the axis, and the nozzle characterized by a D:d ratio of at least about 2:1.
- Morris discloses a nozzle for supplying a coolant in a grinding (cutting) operation, the nozzle comprising an axis, a proximal end having a maximum dimension D, and a distal end portion containing the nozzle discharge area having a longitudinal cross-section of dimension d; the distal portion having a surface disposed at an angle of at least 30 degrees relative to the axis, and the nozzle characterized by a D:d ratio of at least about 2:1. See figure 1, and column 1, lines 9-20.
- Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Kazui et al by replacing the nozzle(12) used therein with the nozzle disclosed by Morris in order to provide more effective cooling of the grinding wheel.

- Regarding claim 2, inherently determining a desired flowrate will comprise using a width of the grinding zone since the total periphery of the grinding wheel should be cooled.
- Regarding claim 3, inherently some power will be consumed as the flowrate is determined as vague recited by applicant.
- Regarding claims 8 and 9, the nozzle of Morris comprises a medial portion having a radius of curvature of at least about 1.5D and an axial length of 3/4D and a cylindrical cross-section.
- Regarding claim 10, as seen in figure 1 of Morris, the ratio D:d is clearly less than or equal to 4:1.
- Regarding claim 11, inherently any plenum or pump for applying pressure for creating the jet will be a "chamber".
- Regarding claim 12, Kazui et al does not disclose a plenum chamber, which comprises a modular front plate removably fastened to a downstream side of the plenum chamber. However, as stated above, any plenum or pump for applying pressure for creating the jet will be a "chamber", and to make portions of the chamber removable for cleaning inside the "chamber" it would have been obvious to one having ordinary skill in the art at the time the invention was made.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kazui et al in view of Morris as applied to claim 1 above, and further in view of Hill et al.

- Kazui et al, as modified, is explained above.

- Kazui et al, as modified, does not disclose determining coolant pressure comprises determining a number and pitch of nozzles.
- However, Hill et al, as explained above, discloses that it is known to use one or two nozzles for cooling the peripheral surface of a grinding wheel. See column 3, lines 27-31.
- Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have further modified the method of Kazui et al by determining a number and pitch of nozzles since Hill et al discloses that two nozzles may be used to replace one nozzle incapable of adequately cooling the peripheral surface of the grinding wheel.

Allowable Subject Matter

10. Claims 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- The cited prior art discloses cooling of nozzles.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy V. Eley whose telephone number is 571-272-4506. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Allan N. Shoap can be reached on 571-272-4514. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Timothy V Eley
Primary Examiner
Art Unit 3724

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